



Building Energy Efficiency Project (BEEP)

CONTEXT

India's construction sector is experiencing unprecedented growth due to both a rising economy and population. Over the next decade, it is expected to grow at seven to eight percent annually. In fact, the total building floor area is expected to increase by four to five times between 2012 and 2047. From 2012 until 2047, the residential building area is expected to increase by four times, the commercial sector area by 13 times.

While growth is a positive indicator of India's development, it also poses considerable challenges in terms of energy demand and supply, as well as carbon dioxide emissions. At present, India's buildings account for 33 percent of the country's total electricity consumption. With the increasing building stock as well as the intensity of electricity consumption in urban buildings, mainly due to rapid growth of air conditioning, buildings will soon become the largest consumer of electricity in India.

In view of this, the Swiss Agency for Development and Cooperation (SDC) in partnership with the Ministry of Power, Government of India, is supporting a project to reduce energy consumption in new commercial, residential and public buildings.

OBJECTIVES

Energy consumption in new commercial, public and residential buildings in India is reduced through energy-efficient and thermally comfortable design and the application of renewable energy technologies. The project includes:

- **BUILDING DESIGN:** Energy-efficient and thermally comfortable building design adopted as standard practice by the Indian building sector.
- **BUILDING TECHNOLOGY:** External movable shading systems for windows and glazed areas in buildings developed and established in the Indian market.
- **POLICY:** Measures for energy-efficient and thermally comfortable buildings integrated in national, state and city-level policy.
- **OUTREACH:** Knowledge on energy-efficient and thermally comfortable buildings widely communicated.



Built Environment

PROJECT AT A GLANCE

Area: Mitigation

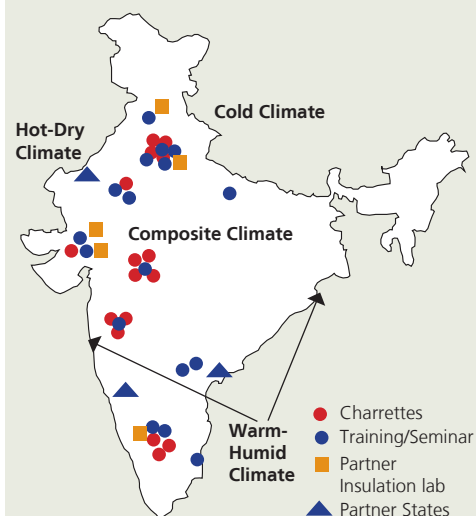
Duration: 2017 – 2021

Budget: CHF 7'000'000

Implementation Partners:

- Effin'art, Switzerland
- Greentech Knowledge Solutions Ltd., India

Geographic Focus:



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

**Swiss Agency for Development
and Cooperation SDC**

KEY ACHIEVEMENTS

- Energy conservation building code for the residential buildings submitted to the Government of India and circulated for public review.
- Guidelines for the design of energy-efficient multi-storey residential buildings for three climate zones in India released (composite, hot-dry and warm-humid climates).
- Technical advice to 22 building projects showed 25-40 percent energy reduction potential through better building design with minimal cost additions.
- Five Indian labs trained in testing building insulation material by the Swiss experts.
- Five new designs of external movable shading systems facilitated and tested.
- Templates developed for the design of energy-efficient public buildings for the states of Karnataka and Rajasthan.
- Technical advice provided to Andhra Pradesh for the energy-efficient design of its new capital.
- 1,500 building professionals introduced to energy-efficient building design processes and specific strategies for energy efficiency in buildings.



PLANNED RESULTS

- Energy conservation building code for the residential buildings released at the national level by the Government of India.
- Competencies of selected builders/developers for energy-efficient and thermally comfortable building design enhanced through trainings and workshops.
- National award on energy-efficient and thermally comfortable building design established.
- Strategies and processes of energy-efficient and thermally comfortable building strengthened in architectural and engineering education.
- New design of the external movable shading systems developed and deployed in the market.
- A roadmap for mainstreaming of energy-efficient and thermally comfortable buildings developed for selected states.
- Simple manuals and online tools for applying energy-efficient building design measures developed and disseminated for large-scale applications.



IN NUMBERS



Buildings in India account for 33% of India's electricity consumption.



India's construction sector is expected to grow at 7-8% each year over the next decade.



As per the estimates of 2010, two-thirds of the commercial and high-rise residential buildings that will exist in 2030 are yet to be built.



The Energy Security Scenarios of India identify the building sector as a sector with one of the largest energy and carbon mitigation potentials.



ENERGY CONSERVATION BUILDING CODE FOR RESIDENTIAL BUILDINGS 2017



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Photos 2 and 3 © BEEP

ABOUT SDC IN INDIA

The Swiss Agency for Development and Cooperation (SDC) has been a partner of India for more than fifty years. Since 2011, SDC's programme focuses specifically on the issue of climate change. It is part of SDC's Global Programme Climate Change and Environment (GPCCE), which actively engages in multilateral climate change policy processes, supports innovative climate change and mitigation projects in targeted partner countries and facilitates the generation and dissemination of knowledge.

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